REMARKS

In the Office Action mailed July 13, 2007, the Examiner addressed the Information Disclosure Statement that was filed with the Application on August 31, 2004, with the comment that it failed to comply with 37 C.F.R. §1.98(a)(2). The Examiner is pleased asked to note that the references cited in the Information Disclosure Statement are the references that were cited in the International Search Report by WIPO, and WIPO is under a duty to provide copies of those references to the United States Patent Office, and they should be in the file, which is a U.S. Nationalization of an International Patent Application under 35 U.S.C. §371. Applicant respectfully requests the Examiner to search the electronic records of this Application to see if in fact WIPO has met its obligation to submit copies of the references cited in the International Search Report to the U.S. Examiner, as reflected on the Applicant's Information Disclosure Statement, and if those references have not been made part of the file, the Applicant will do its best to find copies of those references, all of which are non-US references, and will provide them to the Examiner in a supplemental information disclosure statement.

Applicant has also noted the Examiner's comments that the specification lacks appropriate headings, and the Examiner is informed that the Applicant is attempting to find an electronic copy of the International Patent Application, as originally filed, for the purpose of providing such headings in a substitute specification. The Applicant further informs the U.S. Examiner that the attorney who prepared the International Patent Application died unexpectedly after it was filed, and Applicant is having some difficulty finding an electronic copy of the original Application. When the Applicant has exhausted the search for an electronic copy of the International Patent Application, as filed, Applicant will file a substitute specification that includes the recommended section headings.

Turning now to the claim objections, claims 6-12 were objected to due to the informalities noted on page 5 of the Office Action mailed July 13, 2007. By the foregoing proposed claim amendments, the Examiner will note that the Applicant has addressed the deficiencies noted by the Examiner that gave rise to these claim objections, and that they are now deemed to be moot.

Claims 6, 7 and 8 were also rejected under 35 U.S.C. §112, second paragraph, for the reasons that appear on pages 5 and 6 of the Office Action mailed July 13, 2007. By the foregoing proposed amendments to these claims, the Examiner will also note that the bases for rejecting these claims under 35 U.S.C. §112, second paragraph, have also been addressed, and Applicant believes that the proposed amendments render these claim rejections moot, as well.

Claims 6-12 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Domazakis (WO 02/065860). This reference is disqualified under 35 U.S.C. §103(c), as Domazakis (WO 02/065860) and the claimed invention of the present application were, at the time the claimed invention was made, owned by the same person or subject to an obligation of assignment to the same person.

Claims 6-12 were also rejected under 35 U.S.C. §103(a), as being unpatentable over Stevens et al. (GB 1108994) in view of the combination of Christensen et al. (US 5,654,028) and Farkye et al. (US 5,766,657). For the reasons that follow, Applicant traverses this ground for rejecting claims 6-12.

Applicant's claimed method is substantially and essentially different from that of Stevens, based on totally different approach, leading to a different product.

The Applicant's claimed method describes a process aiming to incorporate liquid olive oil in a meat matrix, thus emulsification of olive oil /milk protein/water occurs in the method, which is a technological approach, a technical solution.

Contrary to the Stevens method, the Applicant's invention allows the making of meat products with olive oil incorporation, by a direct addition of olive oil into the meat batter (meat matrix). Olive oil is being added into the meat batter at a temperature of up to 4°C (maximum), thus protecting the sensitive nutritional ingredients (antioxidants, unsaturated fatty acids). In Stevens, no temperature is defined. For additional protection against the detrimental oxidative effect of oxygen, the greatest part of Applicant's process also takes place under a vacuum, as claimed.

Applicant's processing method is substantially and essentially different from that of Stevens especially by reason of the fact that the olive oil, and more specifically, the olive oil globules are formed and trapped in the meat matrix, interacting with myosin (salt soluble protein, providing emulsifying properties.)

The aim is to achieve a proper stability in the meat matrix and to prevent separation of the olive oil and water during cooking (exudation). Olive oil globules must be dispersed within the matrix of meat proteins in such a way that a stable pseudo-emulsion is established.

Comminuted "emulsion type" meat products, as in Applicant's claimed invention, may be described as a complex mixture of muscle tissue, olive oil, water, spices, and NaCl-soluble. Myofibrillar proteins (myosin and actomyosin) are held together by a variety of attractive forces. Said proteins are of critical importance as the major structural components which form, in the present invention, an interfacial protein film around the dispersed oil globules (emulsion theory).

No homogenization process occurs (as in Stevens). It takes place only in a comminution process (as Applicant claims).

According to the "emulsion-theory," in the uncooked product myofibrillar proteins are attracted to and concentrated on the olive oil particle surface, forming a stabilizing membrane. In Applicant's claimed method, Applicant takes advantage of the localized frictional forces during the comminution process, which help the formation of a thin protein layer on the surface of the olive oil globules to which undenatured myosin is adsorbed. Thus, the "heavy meromyosin head" faces the hydrophobic phase, and the "light meromyosin tail" the aqueous phase.

As an overall result, a monomolecular layer of the undenatured myosin around the (liquid) oil globules is established.

In the uncooked product protein, protein interactions lead to the binding of other proteins to the myosin monolayer. Said protein/protein interactions are, in Applicant's invention, supported by a blend of milk proteins (caseinates) and vegetable proteins. These interactions enhance the stability of the uncooked meat matrix and also the stability of the heat treated final product, as a result of a good heat set protein system, where olive oil is "captured."

Applicant strongly believes that in case of Applicant's processing method the incorporation of olive oil is guaranteed by both the emulsifying properties of myosin and actomyosin and their water holding capacity and to a lesser extent by the emulsifying properties of the added proteins (caseinates and vegetable proteins). This is also the declared aim of the invention.

To the contrary, Stevens' procedure does not take into account any technological aspects, since the aim is to balance the nutritional value of a food composition mainly for babies. Quality attributes of the intended product, such as exudation of olive oil, is out of the scope of Stevens'

invention. The product is not a sausage. It is a sterilized alimentary composition, in a jar. Applicant's method and Stevens' teachings lead to two different products.

In Stevens, homogenization of the composition takes place, and there is no temperature control or vacuum, or other parameters such as added milk proteins, vegetal proteins, or polyphosphates taken into consideration. The Stevens' sterilization process which takes place following said homogenization of the blend is a safety procedure and does not ensure a stable incorporation of the olive oil in the meat matrix.

In Applicant's method, only comminution and mixing under specified conditions takes place.

The Stevens mincing process is only for facilitating cooking of the minced meat, in general there is no specified temperature march. It is not associated with a technological aspect (not establishing appropriate conditions for the incorporation of the olive oil in the meat matrix, at a second process step). There is no specified technological aim (i.e., incorporation , stabilization of the meat matrix)

The Stevens admixture of salt and cooking of the minced meat provides no technological benefit aiming to the extraction (solubilisation) of the salt soluble proteins (actin – myosin). Cooking leads to the denaturation of the meat proteins.

The admixture of olive oil after cooking before or during homogenization is an admixture of olive oil to the already cooked minced meat before or during homogenization to reach a colloidal texture – it provides no technological benefit, since the meat proteins are already a denatured set of proteins, structure destroyed, coagulation, Isoelectrical Point reached, no electrical load, no interaction with olive oil in terms of an emulsified system.

Stevens teaches only preparation of an 'alimentary composition': an admixture of olive oil, only to balance nutritional properties of said alimentary composition.

The Applicant claims a production method to solve a recognized and precisely specified technological problem (stable incorporation of olive oil in a meta- stable pseudo-emulsion type sausage ....).

In Stevens olive oil is only added to cooked meat. The Examiner's remark under page 9, B, is valid: "The material is salted and olive oil is added to the mixture either before or after the alimentary material is cooked (page 1, lines 80-86))."

Applicant's method adds olive oil to uncooked meat batter that is prepared to except olive oil to be emulsified with proteins and water.

In Stevens, a process is taught in which the alimentary material is salted, before the olive oil is added ***(but only to cooked meat – i.e., no technological aim)***

In Applicant's method, olive oil is added to pre-salted uncooked meat, contributing to the stable olive oil emulsification with proteins and water.

Turning now to the Farkye reference, Applicant's claimed method is substantially and essentially different from that of Farkye.

As stated in Farkye,

> "The term "melt-controlled cheese" is used herein to describe a cheese in which the melt has been controlled by integrating curds of cheese with different melt properties and which has a melt value which is different than a natural cheese with similar or like flavor and/or texture."

According to above definition, the Farkye reference is not applicable to Applicant's claimed invention, since Farkye relates to "melt-controlled cheese." "Melt-controlled cheese "is a preparation which provides special behavior, and is specially designed to overcome technological problems associated with the melting behavior of the cheese when used in the

manufacturing of food preparations intended to be cooked or reheated. As an example: a frozen meat product.

Applicant's claimed application aims to a totally different result. The technological problem to overcome is not the melting behavior of Feta-cheese. Stabilized incorporation of traditionally produced Feta is the aim of the Applicant's method. One must keep in mind, that Feta cheese must be produced in a strictly defined way.

Turning now to the Christensen reference, the Examiner stated that Christensen teaches of a comminuted lean meat composition by the process where the comminuted meat is mixed with an emulsion of water and oil along with other ingredients as salt and other fat replacers, and that Christensen teaches making sausages and other meat based products by the process outlined in columns 21-24.(Column 25, lines 1-1 1).

Christensen provides basically two aims:

1. to produce a low calorie (low fat) meat product , comprising a vegetable fat replacement ingredient; and

2. to provide a process for preparing a low calorie (low fat) meat product

Applicant's claimed invention aim is fundamentally different!

In accordance to the process claimed by Applicant, the method is applicable either on high olive oil or on low olive oil content meat products, and is not to produce a low calorie (low fat) meat product, comprising a vegetable fat replacement ingredient.

The content of Applicant's admixtured olive oil is not limited. With said method, two technological problems have been solved in a way that includes the possibility to simultaneously incorporate (emulsifying) olive oil in the meat batter and incorporating and at the same time firmly binding feta cheese cubes in the ready-to-consume product (quality attribute). The solidness of the feta added to the aforementioned product is achieved, as well.

On the other hand, Christensen teaches producing several meat products, using a mixture a vegetable fat replacement ingredient, prepared in a separate procedure, which contains as main components a vegetable fiber and starch and an edible oil as a minor component, called also an "emulsion !! ??". This fat replacement may be used, as such, in a second step, in all types of low fat products presented by Christensen.

The Christensen aim is to reduce high fat content in traditional high fat recipes of traditionally produced meat products, thus solving a "technological problem" associated with the production of low fat products.

Christensen explains that conventional processes used for preparing high fat meat products cannot be applied to produce low fat products, due to several technological problems. More specifically, the composition of the meat batter differs from a high fat meat product mixture in that the fat content is so low, that the meat mixture does not constitute a fat / water / protein emulsion and the water content may be significantly higher. The solution could not be found in the current high fat meat technology, explains Christensen. So, it is obvious that Christensen teaches a method for producing exclusively "low fat meat products," using:

1. a fat replacement ingredient , comprising of vegetable fiber and starch;
2. a proportion of vegetable oil , varying and depending on the product intended to be produced; and
3. the amount of vegetable oil used is so low, that does not constitute an emulsion with fat(olive oil) / water / meat-protein, thus not providing a technological problem , (according to Christensen).

According to Applicant's claimed method, incorporation of olive oil is understood as solving a technological problem associated with the incorporation of olive oil in the meat batter,

taking into consideration that Olive oil as "liquid lipid" provides a totally different behavior than animal fatty tissue. This has been a technological problem previously associated with the emulsification of Olive oil / water / meat-protein. This problem has been solved by the present invention. It takes place in one step procedure. It has surprisingly been found that a coherent forcemeat mixture is obtained, even if substantially most animal fat is "all substituted" by Olive oil, in high or in low fat meat products, thus establishing directly an emulsified meat / olive oil - matrix system

It must be repeated that Olive oil is directly emulsified therein with other ingredients, such as phosphates, milk proteins, soy protein, according to the Applicant's claimed method. A stable olive oil - water - heat set protein structure is obtained after heat treatment, thus leading to a sliceable (or not sliceable), firm and palatable meat product (sausage or meat balls, but not a spreadable preparation, e.g., liver paste). No exudation of Olive oil occurs.

Applicant's final product fundamentally differs from that obtained by the Christensen method. Applicant's product, sliceable or not, is formed as a sausage or as a meat ball. Furthermore, by Applicant's method a second technological difficulty has been solved. Following the same process conditions, an unexpected result of the described technological approach has been obtained. Feta cheese cubes (small pieces, as instantly described) are stably incorporated in the meat matrix of the cooked product.

More specifically, the solidness of the feta added to the aforementioned product is achieved by the combined use of heat treatment (specified time, temperature conditions in combination with interactions between ingredients used). The heat transfer rate, during the heat treatment to pasteurize the product, is such that it will preserve the space lattice of the feta added.

Frictional protein-protein forces are established. No special produced feta type preparation is needed (no non melt cheese as in – Farkye) to be used for stabilizing the feta cubes used.

Regarding the processing temperatures, Christensen teaches of processing meat products at various temperatures, and also teaches freezing at temperatures below O'C (Examples 1-21, specially Example 19, Column 50, lines 53-55).

Christensen teaches the addition of ice water to the comminuted meat to make an emulsion, i.e., temperature in the range of 0° C (Column 30, Example I, Lines 25-65).

The ice water is added at two steps to keep the emulsion at a lower temperature.

In Applicant's method at the stage of mixing ingredients (cominuted with other ingredient to produce a meat matter), the meat batter temperature of the force meat mixture not exceeding 4 ^{0}C.

In Christensen, critical production temperatures (0-4 ^{0}C and up to 71 ^{O}C for thermal processing), blast freezing temperatures (-28 ^{0}C to force immediately cooling down the product after heat treatment) and the temperatures at which it is then stored (O- 4 ^{0} C) are taught.

In Christensen temperatures are also used in different process steps:

to Example 1 and to Example 2

1. Grinding of the meat used together with boiled potatoes (!!) until temperature is increased to 10-12 ^{0}C.

2. Temperature of the forcemeat mixture elevated to 14 – 16 ^{0}C

3. Stuffed sausages dried at 80 ^{0}C, then boiled at 80 ^{0}C, dried in air (no temperature declared).

4. No reference to 0 ^{0}C -temperature applied , even if ice water used. Technologically dominant temperature : 10-12 ^{0}C and 14 – 16 ^{0}C.

5. (Applicant's invention : critical interval 0-4 ^{0}C)

<u>to Example 3</u>

1. Initial temperature of ingredients used 5 ^{0}C

2. Final temperature 14 ^{0}C

to Example 4

1. Patties cooled down to – 4 ^{0}C , then frozen

to Example 5

1. Chicken skin and potatoes boiled

2. Boiling water to the grinder

3. Pie mixture reaches a temperature of about 50 ^{0}C

4. Baking at 180 ^{0}C

5. Cooling down at 5 ^{0}C (after heat treatment)

to Example 6

(not referring to Applicant's method)

to Example 7, 8, 9

1. Temp. 12-14 ^{0}C

to Example 10, 11, 12 ,13,14,15

1. Declared temperature solely 80 ^{0}C for boiling

to Example 16

1. Liver paste , not comparable

to Example 17

1. Declared temperature 80 ^{0}C

to Example 18

1. Not comparable

to Example 19

1. Temperature applied (around 0 ^{0}C),to obtain a coherent mixture in order for facilitating transformation of the meat preparation (hamburger) to the patty former. No declared claim (1 to 64) refers to defined temperature or temperature- march prerequisites.

To the contrary, in Applicant's claimed invention temperature plays a significant role for achieving the technological scope. Defined temperature conditions are claimed as critical parameters of the present invention.

The Examiner notes that the Christensen reference also teaches of vacuum mixing (Column 26, lines 1-5) and then a preservation or cooking treatment (Column 21, line 65 to Column 26, line 3).

Christensen relates to spreadable sausage type products, e.g., liver paste. Liver paste recipe provides LIVER (an offal) as the main ingredient. Meat, is not used.

Applicant's claimed method does not include (disclose) this type of products.

In Applicant's processing method, a defined vacuum is applied. Defined vacuum applied is claimed as a critical production factor (see claims).

From a consumer point of view, "cooking" food, in general is defined as thermal process aiming to make a food digestible.

From a technological point of view "cooking" is understood as a heat treatment to preserve a food and / or to stabilize food compounds (e.g., sausages). In that case the temperature or the temperature march applied is of great importance to achieve desired functional properties of a heat treated product. Thus, meat product properties such as texture, palatability, firmness, cohesiveness, solidness, slice ability, softness, juiciness ect are strongly depended on the temperatures applied.

The term "cooking" in the Examiners note, must not necessarily be regarded as a common process applied, when comparing the Applicant's heat processing with that of Christensen (see also Examiner's note 2: " processing temperatures").

Differences in temperatures applied in both cases could justify a totally different technological necessity, when observing product nature and desired quality attributes, as well (e.g., sausage / olive oil incorporation / avoid ness of oil exudation/incorporation of feta cheese particle / solidness of the feta cheese particles in the heat treated meat product).

The Examiner states that Christensen further teaches of the addition of skimmed milk powder, (i.e., milk protein based compound), seasoning and salt.

Milk proteins and milk derivatives are well known as processing aids in manufacturing meat based products. Milk proteins may provide different functional properties. For example, caseinates (various salts of casein) are usually used for their emulsifying properties. Whey proteins (globulins) are mostly used for their gelatinizing properties. Milk powder contains both of them and lactose as well. So, when such milk components are used, it is of great technological importance to know the intended use of that milk components, whether as a single component or as a mixture of them. In the Applicant's claimed invention, milk proteins (e.g., caseinates) are used together with plant protein (soy protein) to support the emulsifying properties of native myosin, under very concrete and specified conditions (pH, ionic strength , temperature , vacuum). A number of parameters cooperate to that purpose (e.g., emulsifying olive oil in meat batter).

Whey proteins are preferably used for their well gelatinizing properties.

Thus, the milk protein used in Applicant's processing method must not necessarily be observed as an already known material. It is rather the defined technological purpose served by

that materials which should be discussed. In case of Applicant's processing method, a combination of attributes occurs (emulsifying olive oil and stabilizing feta cheese particles in the meat matrix of the product).

Lastly, turning now to the double-patenting rejection, claims 6-12 have been rejected on the ground of nonstatutory double patenting over claims 1-2 of U.S. Patent No. 7,026,007 B2. In response, Applicant states that upon the allowance of claims 6-12 over the prior art of record, Applicant will tender a terminal disclaimer disclaiming the term of any patent to issue on the claims of the present application that extends beyond the term of U.S. Patent No. 7,026,007 B2.

For all these foregoing reasons, Applicant respectfully requests entry of the foregoing claim amendments, reconsideration of the present application in light thereof and in light of the foregoing remarks, and allowance of claims 6-12, as amended, over all the prior art of record.

Respectfully submitted,

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